FORM MR-LMO
(Revised March 2011)

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DIV. OF OIL, GAS & MINING

FOR DIVISION USE ONLY
File #: M/039/0002
Date Received:
DOGM Lead: Peter
Permit Fee $ Ck # Leslie 7366

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291 Fax: (801) 359-3940

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NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

This form applies only to mining operations which disturb or will disturb more than five acres in an incorporated area or ten acres in an unincorporated area at any given time.

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

Cultural Resources: To fulfill its obligations under Utah Code Annotated 9-8-404, the Division needs cultural resource (archaeology) information. The amount and type of information required will depend on the mine location, the history of previous disturbance, and other factors. Please contact the Division for further information.

PLEASE NOTE: *This form is to be used as a **guideline** in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements. The Permittee / Operator may submit this information on an alternate form, but the same or similar format should be used.*

Note: The figures referred to in this Notice are not up-to-date and/or not entirely correct. They have been temporarily accepted, but are not approved.

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I. **Rule R647-4-104 - Operator(s), Surface and Mineral Owners**

Provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. **Business entities listed as the Permittee / Operator, must include names and titles of the corporate officers on a separate attachment (see Attachment 1).**

1. **Mine Name:** Redmond Minerals

2. **Operator name:** Redmond Minerals, Inc.
6005 North 100 West
Redmond, Utah, 84652

Phone: (435) 657-3600 **Fax:**(435) 529-7486
E-mail Address: contact@redmondinc.com

Type of Business: Corporation (X) LLC ( ) Sole Proprietorship (dba) ( )
Partnership ( ) General_____ or _____limited
Or:
Individual ( )

Entity must be registered (and maintain registration) with the State of Utah, Division of Corporations (DOC) www.commerce.utah.gov.
Are you currently registered to do business in the State of Utah? (X) Yes ( ) No
Entity#: 604388-0142
If no, contact www.commerce.utah.gov to renew or apply.
Local Business License # 158800 (if required)
Issued by: County _____or City Heber City, UT

Registered Utah Agent (as identified with the Utah Department of Commerce) *(Leave blank if the operator is an individual)*:
Name: Jason Haddock
Address: 6005 North 100 West
City, State, Zip: Redmond, Utah 84652
Phone: (435) 657-3600 **Fax:** (435) 529-7486
E-mail Address: contact@redmondinc.com

Authorized Agent of the Company
Name: Rusty Bastian
Address: 6005 North 100 West
City, State, Zip: Redmond, Utah 84652
Phone: (435) 657-3600 **Fax:** (435) 529-7486
E-mail Address: contact@redmondinc.com

3. **Permanent Address**: Same as above

4. **Contact Person(s)** *Please provide as many contacts as necessary.*
Name: Mike Forbush Title: Mining engineer
Address: 6005 North 100 West
City, State, Zip: Redmond, Utah 84652
Phone: (435) 657-3600 **Fax:** (435) 529-7486
Emergency, Weekend, or Holiday Phone: (435) 979-4629
E-mail Address: mikef@redmondminerals.com

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Contact person to be notified for: permitting (X) surety (X) Notices (X) (please check all that apply)

5. **Location of Operation**:
   Sanpete and Sevier Counties
   T 20 S, R 1 W
   Sec. 13: SW, S1/2 NW1/4
   Sec. 14: SESE
   Sec. 23: E1/2
   Sec. 24: W1/2
   Sec. 25: NWNW
   Sec. 26: NENE

The names of the surface and mineral owners for any areas which are to be affected by mining are:

6. **Ownership of the land surface**:

   Name: Redmond Minerals, Inc. **Address:** Same as above

7. **Owner(s) of record of the minerals to be mined**:

   Bosshardt, Inc. Address: P.O. Box 292, Redmond, UT 84652

8. **BLM Lease or Project File Number(s) and/or USFS Assigned Project Number(s):** NA

   BLM Claim Numbers: NA

   Utah State Lease Number(s): NA

   Name of Lessee(s): NA

9. **Adjacent land owners:**

Name: Bosshardt, Inc.	**Address:** Box 292, Redmond, Utah 84652
Name: Larry Nielson	**Address:** 173 S. 375 W. Ivans, Utah 84738
Name: Clair Nielson Trustees	**Address:** 173 S. 375 W Ivans, Utah 84738
Name: Hampton Farming and Livestock	**Address:** 1157 West Redmond Lake Dr. Redmond, Utah 84652
Name: Gates and Cindy Nowers	**Address:** 2420 S. Cover View RD, Richfield Ut 84701
Name: Marvin C Jensen Trustee	**Address:** P.O. Box 806 Gunnison, Ut 84634
Name: Merrill C. Hampton Trustee	**Address:** P.O. Box 21 Redmond Ut 84652
Name: Clyde and Colette Kramme	**Address:** P.O. Box 43 Redmond Ut 84652

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Name: Foot Family LLC **Address:** 475 W. 910 S. Heber City Ut 84032

10. **Have the land, mineral and adjacent land owners been notified in writing**?
Yes No X

If no, why not? Mining has been taking place on this property for more than 50 years and all the adjacent land owners are aware of it. The surface of the mining area was originally owned by the Bosshardt Inc.

11. **Does the Permittee / Operator have legal right to enter and conduct mining operations on the land covered by this notice**? Yes __X__ No _____.

R647-4-105 - Maps, Drawings & Photographs

105.1 - Topographic base map, boundaries, pre-act disturbance

Map LO-01Mine Location Map is a base topographic map and shows the mine boundaries. Map HD-06 Off-site Features identifies other features outside of the mine boundary. Map SF-01 Site Facilities Map identifies, among other things, pre-law disturbance areas.

105.2 - Surface facilities map

Surface facilities are shown on maps SF-01 Site Facilities Map and Map SF-02 Site Facilities Map – Detail.

105.3 – Drawings or Cross Sections (slopes, roads, pads, etc,)

Cross sections are shown on diagrams CS-01, CS-02, and CS-03.

105.4 - Photographs

Photos are incorporated in the various narrative sections.

R647-4-106 - Operation Plan

106.1 - Minerals mined

Salt and Bentonite

106.2 - Type of operations conducted, mining method, processing etc.

The mine is located on private property. The property is most easily accessible from the county road on the east side and is less obviously accessible from other sides. Trespassing signs have been posted each entrance. (See Mine Locations Map LO-01, Site Facilities Map SF-01, and Off-site Features Map HD-06)

Clay Mining

Clay mining by conventional open pit methods will continue in the individual pits on a demand basis for each type of clay. Clay mining operations include trench type pits, hillside cuts, and hilltop reductions. The run of mine clay is hauled to a pad for drying and disking or hauled directly to the clay mill for processing. Raw clay is stock piled and transported offsite for processing. The existing clay mill buildings are currently being converted into a maintenance shop, parts warehouse building, and bulk salt storage area.

For safety precautions, all clay and salt mining locations are fenced and signed noting the potential

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safety hazard.

Clay Trench

Clay Hillside Mining

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Clay Pit

Clay Highwall

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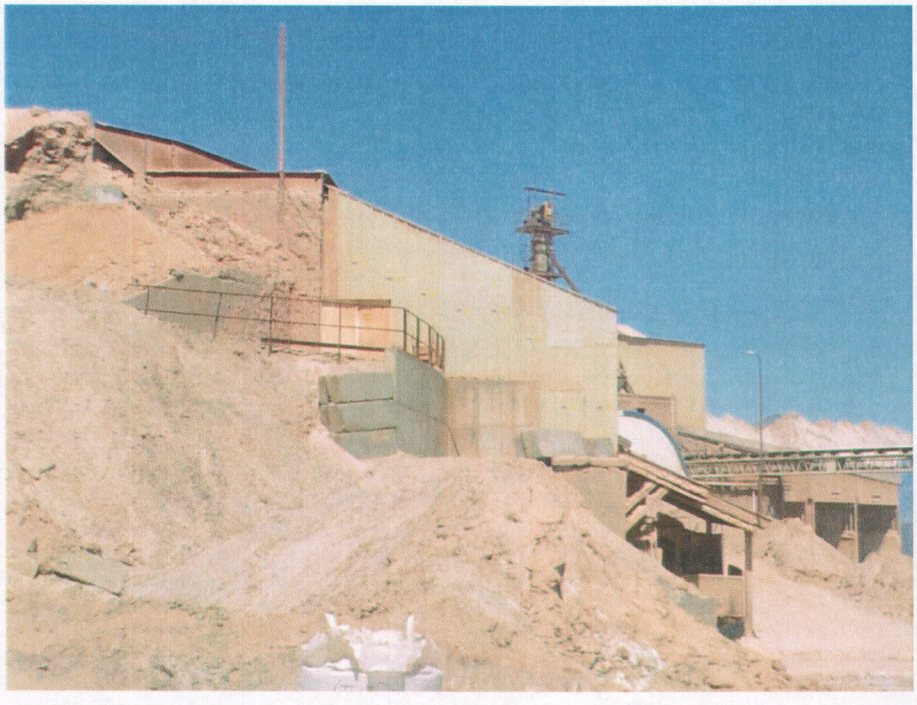
Salt Mining

Salt mining will continue by developing new underground drifts as needed (see Under Ground Workings Map SS-01). Common drift dimensions are 60 to 80 feet wide and 25 feet high. Usual depth of cover is 60 to 500 feet. The drifts are advanced using conventional drilling and blasting mining methods. Different grades/types of salt are mined from the various drifts (see Underground Workings Map SS-01).

There are no plans for having trash pits on Mine property and in the event Redmond sees fit to have one, Redmond will do the required permitting through DEQ before such action. Currently trash is placed into dumpsters and hauled off to county landfills.

Currently salt is transported to the mill from two different portals, the north and south portal. From the north underground mine salt is transported with 60 ton trucks for a distance of about 1.5 miles on an unpaved road. From the south underground mine salt is transported with the same trucks a distance of 0.25 miles on an unpaved road. The haul trucks dump directly into the primary crusher. The primary crusher reduces the material size to about 8 inch and less. The material is then transported to the primary screen by way of 3 small belts. The primary screen sorts the material into three streams to be treated by the following systems: Secondary System; Fines System; Cone Crusher System.



Primary Crusher

1. Secondary System

In the Secondary System material greater than 6" is hand sorted for quality and size. The best quality material is hand sorted and moved onto the food salt system. Rock is sorted into three sizes by a scale system that is located on the Trophy Rock Belt #3. These rock piles are stored in covered concrete bins. All rock over 32 pounds is pushed into a separate bin called the oversized bin. Poor quality rocks are pushed into the reject bin. Material of lesser quality or material that is too small is sent to the secondary jaw crusher. The material is then sent to the secondary screen which divides material into two directions. All material 3/8" plus is sent through the roll crusher and then back onto the secondary screen. Material 3/8" minus is moved directly to the cone storage bin.

a. Food Salt System

The material that is moved through the food salt system is first sent through the Gleason Crusher and then elevated into a storage bin. The material is then processed by a hammer mill and then elevated into a set of screens. The oversize material is moved through another hammer mill and then re-elevated into the screens. From these screens, four different products are made and stored in five enclosed bins.

b. Trophy Rock Packaging System

Trophy rock is dumped into a covered bin by a front end loader. The material is then moved by an apron feeder inside the building and then onto two other conveyor belts. The material is weighed and wrapped with plastic. Salt rocks within the weight and quality range between 6lbs. and 32lbs. will be used and sold as Trophy Rock for Big Game attractants.

2. Fines System

The fines system is made up of one conveyor and two transfer points which move 5/8" minus material from the primary system to the cone storage bin.

3. Cone Crusher

The cone crusher system consists of four covered belts and a cone crusher that serves as a recirculation loop. The cone crusher is fed material that is 6" minus and reduces this material to 5/8" minus. This material is then run through the primary screen again.

a. Road Salt System

From the cone storage bin, the material can be moved either through the Milled Products System or through the Road Salt System. The material that moves through the Road Salt System is treated with brine water, which is pumped from a sump in the salt mine, and YPS (Yellow Prussiate Soda) as it passes through the pug mill and then transported to the storage piles via four belt conveyors. At maximum capacity, the Road Salt Storage piles will fill approximately 7 acres of ground (see Maps SF-01 Site Facilities Map and SF-02 Site Facilities Map – Detail).

b. Milled Products System

The material that is moved through the mill is first dried. The material then is elevated and transferred into the Midwestern Screen. The oversized material is run through a hammer mill and back into the elevator. From the Midwestern Screen, six different products are made by mixing different gradations. These products are stored in covered concrete bins.

c. Warehouse Mixing and Bagging System

Dried and milled salt is moved from the mill storage bins to the loader dump bin by front end loader. The material is moved by auger to an enclosed elevator and can then be directed to either the main bagger or the storage bins. From the storage bins, the material is moved either back to the elevator or to the feed belts. If the material is moved to the elevator, it is then moved to the bagger. If the material is moved to the feed belts, it is moved across the feed belts and into the mixing system. The mixing system can be supplied from the storage bins, the trace minerals dump, or the loader dump point.

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106.3 - Estimated acreages disturbed, reclaimed, annually

The operator has control of a total of 478.04 acres, which is the area shown inside of the fenced area on the attached maps. The total area that has been disturbed, which includes the proposed future clay mining areas, totals 279.3 acres. A total of 22 acres have been regraded and are waiting release. These numbers are current as of 2/18/16.
(See Site Facilities Map SF-01)

106.4 - Nature of materials mined, waste and estimated tonnages

Thickness of overburden –

The overburden thickness above the salt deposit varies greatly from location to location but in general is between 10 and 100 feet thick. The overburden in the clay mining operation varies as well with thickness ranging from 0 to 20 feet.

Thickness of mineral deposit -

The salt deposit stretches the length of the property and is about 1,200 feet in width from east to west. The exact depth is not known, but it is more than 1,000 feet. The clay deposit varies greatly in size and thickness. The bentonite has been deposited in small pods in varying quality.

Estimated annual volume of overburden –

In general, overburden is not generated from the salt mine unless a new area is being developed. The clay mine generates approximately 5 -20,000 tons of waste/reject material per year. Currently, old pits are being filled with the waste that is generated. This is in an effort to complete partial reclamation as mining progresses.

Estimated annual volume of ore mined -

The annual planned salt tonnage to be mined is approximately 500,000 tons. This may increase up to 750,000 depending on market conditions. Our current AO through the UDAQ is for 750,000 tons. The annual planned clay tonnage to be mined is approximately 50,000 tons. This may increase up to 100,000 depending on market conditions. Our current AO through the UDAQ is for 100,000 tons.

Overburden/waste description -

The overburden that is removed from the salt mines is high in chlorides and will not support plant growth. This overburden is buried in pits. The overburden removed from the clay mining areas usually will support plant growth and is used for reclamation.

The salt waste produced is super fine, or less than a 30 mesh in size. Other salt waste produced from the mill consists of material high in insoluble material and will not meet our quality specifications which is rejected. Currently, we produce a total of 5,000 tons/year including superfine salt waste and very little of the high insoluble waste material. As for the clay mine, waste may be sand, rock, or clay that does not meet the quality characteristics. Currently we produce approximately from 5,000 to 20,000 tons/year.

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Clay Overburden

Salt Waste

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Information about acid forming potential or any toxic characteristics –

No material with acid forming potential or toxic characteristics has been encountered to date and is not expected to be encountered in the foreseeable future. Mined salt is deleterious to plant growth and will be buried as to not hinder reclamation. All salt waste will be buried in the Old Bosshardt Mine located south west of the Salt Mill or may return to the mined out underground workings.

106.5 - Existing soil types, location, amount

Attachment 1 includes a map and soil descriptions from the NRCS Web Soil Survey. The soil from previous excavations has been stockpiled in overburden piles. There has been no effort in the past to separate topsoil form overburden and therefore there is very little, if any topsoil available for grading. This soil will be used for fill as needed or simply graded and reclaimed in place. A site-specific chemical analysis was not performed because the native soil will be fertilized and then used for re-vegetation. Current estimates yield 0 tons of suitable soil for material/growth medium. Prior to final reclamation, a soil analysis will be performed to determine the need for and types of fertilizer. The attached maps show three proposed future mining areas which include expansions of the Mexican Hat Pit, the Hilltop Mining Area, and the Tamarack Pit. Prior to expanding the Hilltop Mining Area it is estimated that 1,500 yards of topsoil can be recovered and stored for reclamation. The expansions in the other two areas will be completed without storing any topsoil as the areas have been previously disturbed without recovering any topsoil. All overburden in each of these areas will be used to reduce the slopes in areas previously mined.

106.6 - Plan for protecting & re-depositing soils

Topsoil, when present, will be stockpiled from areas that are to be disturbed in the future. The thickness and volume of soil to be salvaged is difficult to predict because it depends on the amount of stripping necessary to follow veins of clay. All the topsoil to be stripped during future mining will be used for areas that are ready to be reclaimed or stored in additional stockpiles. Any topsoil to be stockpiled for a duration of more than 1 year will be protected by planting vegetation on the surface using the seed mix proposed in the attached Vegetation Study (see Attachment 2). Additional area of topsoil stockpiled will not exceed 5 acres because most of the topsoil removed will be used for ongoing reclamation projects. There are 3 future mining areas labeled on the map that will be expanded. These are the Mexican Hat Pit, the Hilltop Pit, and the Tamarack Pit. The proposed expansion of the Mexican Hat Pit is in previously disturbed ground and thus no suitable topsoil exist. The proposed expansion of the Hilltop Pit consist of mostly rocky barren ground with little to no topsoil, yielding a negligible volume of topsoil. The operator will recover the top 6" of soil and store for use as topsoil in the Hilltop mining area. This will consist of approximately 1,500 yards of material. The Tamarack Pit expansion is in an area consisting of all clay with no topsoil present as well. This area has been previously disturbed without recovering any topsoil and will be expanded without the recovery of any new material for use as topsoil.

106.7 - Existing vegetation - species and amount

A vegetation study (see Attachment 2) was completed by Richard Stevens in July of 1998. In this study, Mr. Stevens found the non-mined areas to have no native stands of vegetation. He also noted these areas have been severely grazed and or burned. His evaluation concluded that the non-mined areas have less than 5 percent coverage of the natural species; it was also noted that total coverage was less than 35 percent including the non native species. A cursory evaluation completed by Glen Nebeker in December of 2011 comparing the report with the existing situation determined that the site evaluation and the re-vegetation recommendations including the species list were still valid.

Mr. Stevens estimated ground cover to be less than 40 percent on unmined areas; therefore, the target ground cover on reclaimed areas is approximately 30 percent.

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Existing Vegetation

106.8 - Depth to groundwater, extent of overburden, geology

The groundwater in the area originates from the farmland and hills west of the mine and flows to the east. The topography west of the mine is such that is causes the surface water to cross the diapir in the area of the Bosshardt Mine. It is likely that the bedrock follows the same general contour as the surface topography which directs the groundwater toward the old Bosshardt Mine.

The present source of water for the mine is from a well, #63-2334, that is about 1 mile west of the mine (see Map HD-03) owned by Bosshardt Inc. This well was completed in May of 1980 to a depth of 236 feet. The static water level in the well was 180 feet or 5097 feet in elevation. It was completed in alluvial material consisting of clay, silt, gravel, and cobbles.

Map HD-03 shows well #63-368 located in close proximity to the west of the Mine. According to the Division of Water rights, this well doesn't exist and had a No Proof Required filing.

There are many underground wells that currently in use for watering livestock just to the east of the mine site. The ground water information for these wells is as follows:

Hampton Farming and Livestock Well #63-92 was drilled to a depth of 55 feet. Static water is found in this 4" diameter well at a depth of 14 feet or 5076 feet in elevation. It was completed in alluvial material consisting of clay, sand and gravel.

Gate and Cindy Nowers Well #63-349 was drilled to a depth of 110 feet. Static water is found in this 4" diameter well at a depth of 4 feet or 5086 feet in elevation. It was completed in alluvial material consisting of clay and gravel.

Marvin C Jensen Well #63-346 was drilled to a depth of 97 feet. Static water is found in this 4" diameter well at a depth of 13 feet or 5077 feet in elevation. It was completed in alluvial material consisting of clay, sand and gravel.

In the area near the south underground mine and specifically the existing French drain alluvial flows of ground water have been located at or near the contact point between the alluvium and bedrock as noted in the Whetstone Report that is included in Appendix C. The alluvial flows likely originate from the fields to the West of the mine and flow down gradient to the east, as water inflow rates have been noted

to increase during times of irrigation. The underground workings are completely dry other than water that has been directed into the mine for use in the construction of ventilation shafts or that used for dust control. In areas where the salt has been removed to facilitate the construction of ventilation shafts, portals, etc., water enters the mine from the alluvial structures adjacent to the mine. The interior areas of the salt deposit are inherently dry. It is important to note that the salt deposit does not contain any liquid in the form of brine or water, all of the brine contained in the mine are due to external sources either from the adjacent alluvial structures, rain fall, or by intentionally bring the liquids into the mine by the operator. The operator has chosen to store brine in several areas of the mine due to the inability to discharge or otherwise dispose of brine. Most of the ground water inflow that has been detected have occurred at an elevation of between 5050' and 5070' above sea level.

As a result of the completion of the technical reports in Appendix C, a water system has been installed to mitigate the effects of the water produced by pumping the French Drain. This system collects the water and pumps it to the east side of the diapir and deposits it in a storage pond. Since the construction of this system the mine has not detected any further subsidence events.

The water currently being captured from the French drain has been sampled several times since the time that the Whetstone paper was written. The very first sample taken directly from the French drain indicated the water contained 3% NaCl. Tests since that time have indicated a much lower level of salt concentration. The average level of salt concentration is 1350 ppm or 0.135% NaCl.

The geologic units and their description are shown on the Geologic Map GE-01. The following is a general geologic description of the area:

Coalesced alluvial fans - This formation occupies the western half of the property only to a depth of about 16' to 165' from the surface. The area consists of deposits from the Holocene and Pleistocene periods. The deposits are brown to dark-brown, thin to thick bedded, commonly cross-bedded, moderately well-sorted, unconsolidated to well consolidated sediment, cemented mainly by calcium carbonate. The deposit consists of silt, sand, granules, and pebbles that were washed into place by running water not confined in specific channels. These deposits provide an excellent source of sand and gravel.

Intrusive masses of the Arapian Shale - Generally light gray marked by pale-red blotches, but, in places, wholly drab gray or reddish brown. Calcareous mudstone, thin-to medium-bedded; locally massive. Includes intercalated, thin, lenticular beds and seams of yellowish-gray to light-brown siltstone and sandstone, and a few beds of limestone. Contains thick beds of rock salt (halite), gypsum, and other evaporites. Selenite crystals are abundant on many outcrops of marine saline-basin origin. Formation is complexly deformed and shows evidence of intense compressions. Weathers to badlands topography. The salt (and possibly other evaporites) in the Arapien Shale has probably been moving ever since it was deposited during the Middle Jurassic. Some of this movement has been slow, almost imperceptible upwelling. At times, however, the salt appears to have surged upward rapidly, forcing up the overlying mudstone of the Arapien Shale, which, in turn, bowed up the country rock to form elongate, narrow diapiric folds. Subsequent solution and removal of the salt resulted in collapse of the upwarps. Such major upwelling's of the salt may have occurred during the Late Cretaceous, early Paleocene, and late (?) Oligocene or Miocene. A localized upward surge of the salt, probably during the Pleistocene, apparently deformed semi-consolidated sediment in the southern part of Sanpete Valley. Thus, the formation has severances; the depositional age is Middle Jurassic, but emplacement ages - the geologic age of movements - have changed repeatedly. Thickness uncertain because of intense deformation; estimates range from about 4,000 ft. to as much as 13,000 ft.

Unconsolidated Deposits - Only a small portion of the mine falls under his category. The area consists of deposits from the Holocene and Pleistocene periods. The deposit consists of dark-brown

to dark-gray, thin- to thick-bedded, faintly cross bedded sediment. The commonly unconsolidated deposits consist of clay, silt, sand, granules that were washed into place by running water not confined in the fans. The material was derived from the disintegration of units exposed in the adjacent uplands. Thickness ranges from a thin film to about 25 feet.

Map GE-02 shows USGS Map I-1304-A with a detailed table of the geologic characteristics and uses of surficial and bedrock units in the Redmond quadrangle, Sanpete and Sevier counties, Utah (1981).

106.9 - Location & size of ore & waste stockpiles, tailings & treatment ponds, and discharges

One small stockpile of raw salt ore from the mine will be created just south of the primary crusher to serve as a buffer between the mine and the mill. This stock pile will be maintained at less the 20,000 tons. This stockpile will consist of run of mine rock that can be fed into the crusher in the case that the salt mill is crushing faster than the mine is hauling it up. Finished product piles will be created just north of the mill. These piles will vary in size, but should not exceed 500,000 tons total. These product piles can be seen in detail on the Site Facilities Map, SF-01.

Waste salt, which is primarily superfine salt or salt under 30 mesh is being used to reclaim the old Bosshardt mine. Currently, and for the foreseeable future, all waste salt will be pushed into the old mine. Some older salt waste piles exist and are noted on the Site Facilities Map, SF-01.

Unprocessed clay will be stockpiled in several locations depending on the grade of the material. Raw clay will be placed on pads where is sampled to determine the quality of material. Once this is complete the material will be separated and stockpiled in the appropriate locations. These piles will vary in size, from 100 tons to 100,000 tons. These piles are shown in detail on the Site Facilities Map, SF-01.

Various piles of clay waste materials exist throughout the mine property. In the future, these piles will be re-graded and reject material will be placed in abandoned pits. The location of these piles can be seen on the Site Facilities Map, SF-01.

There are no tailing piles on the mine property.

There are several small water retention ponds on the property, as shown on the Site Facilities Map. There are no areas that water is treated for discharged from the site.

Currently, water is collected from the French Drain and moved to a small pond at the south end of the mine site. This water has been sampled multiple times and has been measured to contain 1350 ppm or 0.135% NaCl. This pond also catches surface drainage water from the farmland to the west. The French Drain was put in place over 30 years ago in an effort to minimize the amount of water entering the mine. Currently the operator has captured this water and is pumping it across the salt deposit to minimize contact with salt and reduce the possibility for contamination. This system was implemented in order to reduce or eliminate contamination of the water by contact with the salt. This system picks up fresh water and moves it across the salt deposit without contamination that would otherwise result.

The Site Facilities Map (SF-01) shows 4 Trash Pits and 2 Equipment Storage Areas. Trash Pits are used to contain scrap metal until it can be sold and are not used to dispose of any "Trash". Equipment Storage Areas are used for storage of equipment not currently in use in the operation.

R647-4-108 - Hole Plugging Requirements

All exploratory drill holes will be plugged in accordance with R647-4-108.

R647-4-109 - Impact Assessment

Bighorn Archaeological consultants has completed a Class I cultural resource file search and Class III intensive level pedestrian cultural resources inventory Utah under Utah State Project Number U12-HO-0074p (Report Number 12-05).

109.1 - Impacts to surface & groundwater systems

Two shallow ephemeral drainages enter the mine property from the west. One is on the north end of the property and the other is on the south end. Most of the precipitation that falls in the mine area is trapped in the nearly impermeable clay formations from where it evaporates, therefore, minimal run-off results from the mine area and the mining operations do not affect the quality of the water in the natural drainages to the east of the property. Mining has been taking place for over 50 years and there has not been an impact to adjacent properties caused by mining or run-off (surface or groundwater). Hydrology Maps HD-01 and HD-02 show the drainages and drainage patterns in the mine area. Hydrology Map HD-01 also shows a French Drain system that was installed in the southern portion of the mine area to control a subsidence problem. Water from the French drain is discharged to a surface tank and pumped to a retention pond near the southeast corner of the property (see Map HD-01). Recent tests show the average concentration of NaCl to be 1350 ppm or 0.135 %.

In August of 2011 Whetstone Associates, Agapito Associates, Inc. and Subsurface Surveys & Associates, Inc. were hired to give recommendations on how to deal with the water being collected by the French drain and recent subsidence activities. Whetstone recommended performing several studies to determine the path of ground water and some geophysical studies to locate existing areas of damaged salt due to the movement of water. The company has completed some of the geophysical testing in an attempt to locate other areas of potential subsidence without much success. The final recommendation was to pump the water from the French drain across the salt deposit to eliminate further contamination and risk of subsidence. All of the mentioned reports have been included in Appendix C.

All surface water is contained in various retention ponds throughout the mine site. Efforts have been made to ensure no surface water leaves the mine site. A raised road which serves as a berm to prevent any surface water from leaving the property will be maintained. There are several small pits and an interrupted ditch running along the county's Salt Mine Road that contain minimal amounts of surface runoff water until it either infiltrates or evaporates. Where physically practical, regrading work will be done in a manner to ensure proper surface drainage, which will eliminate or minimize the effects of these small pits and water control structures. The old Bosshardt Mine will be completely filled with reject salt or other suitable material prior to regrading. The South Mine slopes will also need to be regraded in a manner that will prevent it from filling with water at the end of mining.

The subsurface (groundwater movement) and surface water flows from west to east (see Hydrology Maps HD-01 and HD-02). Any water that accumulates in the underground portions of the mine is stored in various sumps and then periodically pumped to a tank on the surface and used in the treatment of road salt or sold to other customers. As a result of the technical reports, the operator no long stores or intentionally directs any fresh water into the underground mine. Only brine is stored in any underground area to mitigate the risk of subsidence or mine collapse. All fresh water that can be collected through the French drain or any other system will be pumped across the diaper and stored in an effort to prevent dissolution of the salt deposit and possible future subsidence. In Utah a mining operation does not need to obtain a water right in order to dewater a mine. There are no other subsurface environmental impacts due to underground salt mining. When mining ceases, the pumps will be removed and reclamation activities will be completed. At this point, ground water will resume its natural flow from the west to the east. Due to the density of salt brine, the brine will stratify leaving the saturated brine to collect in the low spaces and the fresh water to float over the top just as it was prior to mining. At this time there may be an increase in the amount of TDS in the ground water until the natural path of flow is reestablished and the ground water system returns to a pre-mining state.

Once the pre-mining state has been established, the TDS levels are expected to return to normal pre-mining levels. There is enough public information and available knowledge to suggest contamination to wells down gradient from the Mine in the surrounding area is unlikely.

Potentially deleterious materials that are stored on site include fuel oil, engine oil, and other lubricant oils. Fuel oil is stored in tanks with secondary containment. Other oils are stored indoors on concrete floors. Therefore, any potential spills can be easily cleaned up before contamination of soil or groundwater (despite the depth) can occur.

The waste salt stockpiles (see Site Facilities Map SF-01) are located in depressed areas over salt formations. Any water that is leached from these piles during precipitation will remain on site around these piles and seep into the ground and into the salt formations.

109.2 - Impacts to threatened & endangered wildlife/habitat

Typical wildlife present in the area are skunks, fox, squirrels, badgers, raccoons, mule deer, birds, lizards, snakes, etc. The site has been actively mined on private property for more than 50 years and any potential sensitive wildlife habitat has been disturbed even before Redmond Minerals commenced operations.

109.3 - Impacts on existing soils resources

There has been no effort in the past to store topsoil for reclamation work. Topsoil will be separated and stockpiled from any future disturbances. There are no riparian or wetland areas within the boundaries of the mining area. There are no threatened or endangered plant species in the area as evidenced from the list of native plant species in the re-vegetation report.

109.4 - Slope stability, erosion control, air quality, safety

Slope Stability

The salt mines were opened up more than 50 years ago. Redmond Minerals has been excavating underground to remove rock salt. All the rock salt that is removed is processed and sold. Therefore, there are no continual surface impacts and disturbance due the underground mining of salt. During mining operations slopes will be maintained in safe condition in cooperation with MSHA and in meeting guidelines from 30 CFR part 56 and 57. These high walls are regularly inspected by MSHA and maintained to provide a safe work environment for the workforce. After mining these high walls will be supported by pushing in and reducing slopes to acceptable grades with a slope of less than 3H:1V.

In recent past the Bosshardt Mine collapsed. The cause of the mine collapse has been identified to be of two parts, the first of which was from directing fresh water into the mine tunnel for storage. This practice eroded the sill pillar of the mine and widened the tunnel out to the point of collapse. This practice has been eliminated by installing a pumping system to move the fresh water across the salt diapir and prevent future dissolution of the salt deposit while mining is ongoing. The second cause is the mine design or lack of engineering controls in the mining process used at the time. The mine that collapsed was developed with dimensions that exceed the recommended mining widths and sill pillar thicknesses. All new mining will be engineered to maintain a stable mine environment and to prevent mine collapse and future subsidence. With proper mining methods and prudent mine design, this problem can be eliminated. Appendix C contains the technical reports from both Whetstone and Agapito & Associates related to the collapse of the Bosshardt Mine.

Erosion

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The potential for erosion is minimal because no natural streams pass through the mine that can flood and carry sediment with it. Due to minimal precipitation in the area, run-off water that leaves the site is minimal as well. Most of the exposed overburden material forms a crusty surface with the action of limited precipitation that further reduces the potential for erosion. Also, material that can be potentially eroded from the walls of the mines falls right in to the pit rather than leave the property boundary. (See Hydrology Maps HD-01 and HD-02)

Air Quality

Redmond Minerals, Inc. presently operates the salt and the clay plant under Approval Orders (AO) from the Utah Division of Air Quality. The latest Approval Order numbers are as follows:

Salt and Clay Mining and Salt Processing AO DAQE-IN106750007-11, dated September 20, 2011

Bentonite (Clay) Processing Plant AO DAQE-AN0100350011-10, dated November 4, 2010

Public Health and Safety

Public Health

The operation in the mine does not involve any activities that could adversely affect public health in the vicinity of the mine. The operations would have minimal air quality impact on the towns of Axtell and Redmond (which are closest to the operations) because the distance to these towns from the mine is about three miles (the towns are not immediately adjacent to the mine). Also, Redmond Minerals has installed several baghouses and control devices in the clay and salt processing operations to minimize the emissions of particulate matter. As mentioned above, the operations and control devices are approved under permits issued by the Utah Division of Air Quality.

Safety

The mine is located on private property. The property is most easily accessible from the county road on the east side and is less obviously accessible from other sides. Trespassing signs have been posted at the entrance. All active mining locations are fenced with additional hazard warning signs posted on their perimeter and along the boundaries of the mines at hazardous locations.

In the event that a surface sink hole should form, the operator shall mitigate hazards by fencing the area or by pushing up berms with signs posted stating the hazard around the area of concern for a temporary solution. Once subsidence has stopped the area will be either regraded or backfilled to acceptable standards for a permanent solution.

As mining operations are completed in specific areas, fences will be constructed at select locations (e.g. at locations where roads terminate at the beginning of a mine). The gate along the east fence is locked during extended periods of inactivity (e.g. during some weekends). During other days, the plant is operated round-the clock and so the gate is open. Warning signs are posted near hazardous areas of the mine. Underground openings are gated and locked between work shifts and during extended periods of inactivity. Appendix D details the final closure of the portals when mining is complete. Worker health and safety will be addressed by operating in compliance with the requirements of the Mine Safety and Health Administration (MSHA). Berms along mine roads, which appear to be for drainage control, are safety measures required by MSHA. Berms are provided to ensure safety around pit high walls as per R647-4-111.1.15.

Mine Gate

109.5 - Actions to mitigate any impacts

To mitigate the impacts of slope stability, sink holes and demonstrate a long term factor of safety is noted above in 109.4. Waste rock, rejected material and overburden will be used as fill in pits that require backfill and will not be used in the future. It would also be used to reclaim slopes to the extent possible to increase slope stability and safety. There is adequate on-site use for the rejected material. Therefore, the rejected material will not be disposed off-site. Also, there is enough waste and overburden material on site that no additional fill material will need to be brought in from off site for reclamation.

All top soil and other overburden soils that can be used for reclamation will be stockpiled separate from other overburden that is not suitable for re-vegetation. Topsoil will be used within a few months of excavation, if possible, to re-vegetate existing sites. Any topsoil that is not to be used for re-vegetation within about one year (given the fact that re-vegetation needs to be initiated during late fall to early winter to maximize the probability of success) of excavation will be re-vegetated with a seed-mix with species chosen from the list proposed in the attached Vegetation Study (Attachment 2).

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

Pre-mining Land use was agricultural, mainly livestock grazing. Post mining land use being considered is both agricultural and to convert some of the property and buildings into a museum.

110.2 – Reclamation of roads, high walls, slopes, drainages, pits, etc.

Paved roads near the entrance to the mine and certain unpaved roads will be retained for farming operations. All other unpaved roads will be reclaimed by re-grading (where necessary), ripping and seeding. These roads are identified on attached maps. All salt and clay high walls will be reduced to a 3H to 1V slope. One of the other impacts of steeper slopes is erosion. In this case, there is minimal potential for off-site erosion because the material will erode right into the pits rather that out of the pits. The old Bosshardt Mine will be filled with waste salt and regraded as part of the ongoing operation. Map RT-01 Reclamation Treatments Map identifies all areas and types of reclamation. This includes undisturbed areas, the reclamation area boundary, major grading contours, re-grading earthwork volumes by area, pre-law disturbance, buildings and the areas that have been regarded and are waiting release by UDOGM. All areas within the reclamation boundary shown on map RT-01 will be reclaimed to meet standards in R647-4-111. The re-vegetation treatments for the reclaimed areas are discussed in section 110.5 below.

Haul Road South of North Mine portal

Hydrology Maps 01 and 02 show the drainage patterns for the mine area. It is expected that after reclamation water will accumulated in the low areas of abandoned clay mine pits. Efforts will be made to ensure that natural drainage channels are not affected by these areas.

Access to horizontal tunnels in salt mines will be restricted by installation of metal gates when the mine is to be temporarily closed. When it comes time to permanently close the portals suitable material will be pushed into the portal entrance at a distance of 2 times the height of the portal before the slopes of the area are to be regraded and reclaimed. Appendix D shows the proposed method of closing the portals when mining is complete. There are four vertical air shafts that intercept the surface on the mine property. Appendix E shows the two alternative methods of permanently closing the shafts when they are no longer needed. These drawings show both the existing shaft layout and the proposed closure plan. A copy of the UDOGM's approved shaft closure plan has been included in Appendix E and will be used as a minimum guideline. The operator may choose to increase the size of the plug depending on existing conditions. The approximate maximum diameter of the ventilation shafts are 8'.

It is expected that no more small drill holes will be drilled on site (e.g., for groundwater exploration). Larger exploratory holes may be excavated to locate material veins. These holes will be closed using the excavated overburden and compacted. If any other holes are drilled, they will be capped and sealed in accordance with R647-4-108.

In the past, trash, scrap metal and other nonhazardous debris are being disposed in a trash pits (see Surface Facilities Map SF-01). This practice is no longer being used. These areas will be cleaned up by removing all existing trash and then back filling or regrading by using overburden or other suitable materials. Each pit will then be reclaimed as shown on the Redmond Treatments Map and Revegation Seeding Map SD-01.

Clay waste and mining areas will be regraded to slopes less than 3H : 1V. These areas will then be disked, treated with manure at a rate of 5 tons per acre, and seeded. This treatment is shown as Type A on the Re-Vegetation Treatments Map, SD-01.

Salt storage piles will either be sold and removed from the site or regraded, ripped as necessary, covered with 6" of topsoil, fertilized with composted manure and reseeded. Salt waste dumps will also be reclaimed using this treatment method. This reclamation treatment is listed as Type B on the Re-Vegetation Treatments Map, SD-01.

Clay product piles and processing areas will be regraded to slopes less than 3H : 1V. These areas will then be treated with manure and broadcast seeded. This treatment is listed as Type C on the Re-Vegetation Treatments Map, SD-01.

Salt mining areas, roads, and other minor disturbances will be regraded to slopes less than 3H : 1V. Any sinkholes found during the reclamation process will be either regraded or backfilled to acceptable standards. These areas will then be disked, treated with composted manure and then seeded. This treatment is listed as Type D on the Re-Vegetation Treatments Map, SD-01.

All water retention ponds will be regraded, covered with 12" of topsoil, fertilized with composted manure and reseeded, as shown on RT-01. This reclamation treatment is listed as Type E on the Reclamation Treatments Map, RT-01.

At the end of the mines life and the completion of reclamation the culvert that is used to access the pipe leaving the French Drain will be excavated and removed. At this time the pipes will be capped and the underground water will be allowed to resume its natural course over the top of the salt diapir. All pipes leaving this area will be capped on both ends. Tanks and pumping equipment will also be removed and the area will be regraded to proper slopes. It is possible that decommissioning the French drain will cause some short term subsidence in the immediate area. The subsidence should be minimal and will not persist as new channels are created for the alluvial water to flow from the west to east as was the case before the disturbance existed. This area will be fenced off until it is deemed safe to prevent inadvertent access. The areas adjacent to the French Drain will also be regraded when it is deemed safe to do so.

The mine does not have any tailings areas or leach pads.

110.3 - Description of facilities to be left (post mining use)

Map SF-02, Site Facilities Map – Detail, shows the locations of the 15 buildings within the mine area. It includes a table listing the buildings with their size, construction type, use, and whether or not it is to be reclaimed. Buildings 7-17, 22 and 23 should be evaluated at the end of the mine life to determine the possibility that those being maintained will support the post mining land uses, which includes agriculture and the conversion of some of the property and buildings into a museum.

110.4 - Description or treatment/disposition of deleterious or acid forming material

No material with acid-forming potential has been encountered to date and is not expected to be encountered in the foreseeable future. Potentially deleterious materials that are stored on-site include fuel oil, engine oil, and other lubricant oils. Fuel oil is stored in tanks with secondary containment. Other oils are stored indoors on concrete floors. Therefore, any potential spills can be easily cleaned up before contamination of soil or groundwater can occur. Chemicals added to some of the Salt are YPS (Yellow Prussiate Soda), MgCl and Gylcerin. At the end of the Mines life these materials will be

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The salt waste piles will be used to reduce the slope of the salt mine high walls. The salt waste and some of the overburden removed from the salt mine is high in chlorides and will not support plant growth. The ideal location to dispose of this material is in the abandoned salt mine areas. By filling these areas in with this material it brings it back to near the pre mining state. These areas will be covered with additional soil and seeded using Type D treatment as shown on the Re-Vegetation Treatments Map, SD-01. The approved NOI (1999) included flooding as part of the reclamation treatment for the salt waste and product pile storage locations. Flooding these areas could potentially create a hazardous problem in the handling, disposal, and possible escape of the saline water. For this reason the areas will not be flooded but will be covered with at least 6 inches of soil, treated with composted manure, and reseeded.

110.5 – Re-vegetation planting program

A Vegetation Study (Attachment 2) was completed in 1998 by Richard Stevens (see Section 106.7). It included a re-vegetation plan and a list of recommended species for seeding. Many areas of the mine were disturbed before Redmond Minerals began mining operations in the 1960s. Also non-native vegetation due to farming activities is now present in many areas. The objective of the vegetation survey was to arrive at a proposed re-vegetation density and recommended species. Due to site-specific issues stated above and in the report, Mr. Stevens has recommended a species list to be used for re-vegetation. In addition to Mr. Steven's recommendation, Redmond Minerals would include Globemallow (at 0.2 lbs/ac) and Lewis flax (at 1.0 lbs/ac) to the seed mix. The vegetation density including native and non-native species according to Mr. Stevens' report was approximately 40%. Therefore, the target re-vegetation density is approximately 30% cover. Total vegetation mix is shown below.

Forage koshia (2PLS lbs/acre), Rubber rabbitbrush (0.5 PLS lbs/acre), Yellow sweetclover (1 PLS lbs/acre), crested wheatgrass (2 PLS lbs/acre), Tall wheatgrass(1 PLS lbs/acre), Russian wildrye(1 PLS lbs/acre), Mountain rye(1 PLS lbs/acre), Bottlebrush squirreltail(1 PLS lbs/acre), Globemallow (at 0.2 lbs/acre) and Lewis flax (at 1.0 lbs/acre).

Map RT-01, Reclamation Treatments (Seeding) Map, identifies the treatment areas, size and the treatment type to be used. The treatment types are as followings:

Type A - Disk, composted manure (5 tons/acre) seeded
Type B - Ripped, 6" inches soil, composted manure, seeded
Type C - Broadcast seeding & composted manure
Type D - Backfilled, disked, composted manure, seeded
Type E – Re-graded, 12" soil, composted manure, seeded

R647-4-112 – Variance

No Variance requested at this time.

R647-4-113 – Surety

Earth work, Vegetation, and Demolition estimations have been completed using the worksheets provided by UDOGM. This information was used in conjunction with estimates from the 2014 editions of RSMeans Heavy Construction Cost Data and RSMeans Open Shop Building Construction Cost Data. Please See Appendix B for details. A summary of the costs estimates are shown below:

Total Earthwork Cost	$587,727
Total Revegetation Cost	$279,027
Total Demolition Cost	$222,668
Total Proposed Bond	**$1,089,422**

XI. SIGNATURE REQUIREMENT

I hereby certify that the foregoing is true and correct. **(Note: This form must be signed by the owner or officer of the company/corporation who is authorized to bind the company/corporation).**

Signature of Permittee / Operator/Applicant:_____

Name (typed or print): _____

Title/Position (if applicable): _____

Date: _____

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.
Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: ( ) Yes ( ) No